

- 1 1. (Currently amended) A method of fabricating an electronic device, comprising
2 the steps of:
- 3 a) providing a coil of conductor and an insulation, said coil of
4 conductor having a coil outer surface and a coil inner surface, said
5 insulation on said coil outer surface, said coil of conductor further
6 comprising a coil length;
- 7 b) forming openings in portions of said insulation on said coil outer
8 surface and exposing conductor in said openings for external
9 contacts; and
- 10 c) dicing completely through said coil to provide a plurality of short
11 coils, wherein each said short coil has at least one said opening in
12 said insulation, wherein each of said plurality of short coils has a
13 short coil length that is less than said coil length.
- 1 2. (Previously amended) The method as recited in claim 74, wherein said providing
2 step (a) comprises the step of providing ~~a tube and~~ a wire, and winding said wire
3 around said tube.
- 1 3. (Previously amended) The method as recited in claim 2, wherein, in said
2 providing step (a), said wire comprises two ends, wherein neither of said ends
3 extends from said coil for contacting.

1 4. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 1, further comprising the steps of:

3

4 e) providing a substrate; and

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6 f) surface mounting said coil to said substrate.

1 5. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 4, wherein, in said providing step (e), said substrate comprises a printed
3 circuit board, a ceramic substrate, a flexible material, or an integrated circuit.

1 6. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 4, wherein said surface mounting step (f) comprises the step of
3 electrically connecting conductor exposed in said opening in said insulation to
4 said substrate.

1 7. (Original and withdrawn from consideration) The method as recited in claim 6,
2 further comprising the step of providing a solder or conductive polymer, wherein
3 said electrical connecting step comprises joining with said solder or said
4 conductive polymer.

1 8. (Original and withdrawn from consideration) The method as recited in claim 7,
2 wherein said joining step comprises providing solder paste between said
3 substrate and said conductor exposed in said window and heating to reflow said
4 solder.

- 1 9. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 4, further comprising the step of mounting additional electronics on said
3 substrate.
- 1 10. (Original and withdrawn from consideration) The method as recited in claim 9,
2 further comprising the step of connecting said additional electronics to said coil.
- 1 11. (Original and withdrawn from consideration) The method as recited in claim 10,
2 further comprising the step of providing a housing for holding said coil, said
3 substrate, and said additional electronics.
- 1 12. (Original and withdrawn from consideration) The method as recited in claim 11,
2 further comprising the step of hermetically sealing said housing.
- 1 13. (Original and withdrawn from consideration) The method as recited in claim 11,
2 further comprising the step of providing pins for external connection through said
3 housing.
- 1 14. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 11, wherein said coil and said additional electronics comprise a sensor.
- 1 15. (Original and withdrawn from consideration) The method as recited in claim 14,
2 wherein said sensor comprises a variable reluctance transducer.
- 1 16. (Original and withdrawn from consideration) The method as recited in claim 14,
2 wherein said sensor is for measuring strain, displacement, acceleration, force, or
3 pressure.

- 1 17. (Original and withdrawn from consideration) The method as recited in claim 14,
2 further comprising the step of providing a circuit to correct for temperature
3 variation.
- 1 18. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 17, wherein said circuit is integrated within said housing.
- 1 19. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 17, wherein said circuit is located within signal conditioning electronics
3 separate from said housing.
4
- 5 20. (Original and withdrawn from consideration) The method as recited in claim 9,
6 wherein said additional electronics provides excitation or synchronous
7 demodulation.
- 1 21. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 9, wherein said additional electronics converts an ac waveform to a dc
3 voltage.
- 1 22. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 1, further comprising the step of enclosing said coil in a housing and
3 hermetically sealing said housing.
- 1 23. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 1, wherein said step of forming openings in portions of said insulation
3 comprises laser ablating said insulation.

- 1 24. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 23, wherein said step of laser ablating said insulation, comprises
3 directing light from a laser on said insulation.
- 1 25. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 23, wherein said coil comprises a plurality of turns of said wire and
3 wherein said step of laser ablating said insulation comprises opening said
4 insulation over a plurality of said turns of wire.
- 1 26. (Previously amended and withdrawn from consideration) The method as recited
2 in claim 23, wherein said step of laser ablating said insulation comprises ablating
3 a ring shaped opening in said insulation.
- 1 27. (Original) The method as recited in claim 1, wherein said insulation comprises
2 polyimide.
- 1 28. (Previously amended) The method as recited in claim 75, further comprising the
2 step of providing a structure for holding position of said core within said tube.
- 1 29. (Previously amended) The method as recited in claim 28, further comprising the
2 step of providing a structure for resetting position of said core within said tube.
- 1 30. (Previously amended) The method as recited in claim 29, wherein said structure
2 for resetting position of said core within said tube comprises an electronically
3 controllable clamp.
- 1 31. (Original) The method as recited in claim 30, wherein said electronically
2 controllable clamp comprises a shape memory alloy.

1 32. (Previously amended) The method as recited in claim 29, wherein said structure
2 for resetting position of said core further comprises a spring so said core can snap
3 to a new position when said clamp is released.

1 72. (Previously added) The method as recited in claim 1, wherein said step of
2 forming openings in portions of said insulation comprises abrading said
3 insulation.

1 73. (Previously added and withdrawn from consideration) The method as recited in
2 claim 1, wherein said step of forming openings in portions of said insulation
3 comprises chemically etching said insulation.

1 74. (Previously added) The method as recited in claim 1, further comprising the step
2 of providing a tube, said tube having an outer surface and an inner surface,
3 wherein said providing step (a) comprises providing said coil of conductor inner
4 surface and said insulation on a said tube outer surface.

1 75. (Currently amended) The method as recited in claim 74, further comprising the
2 step steps of providing a movable core within said tube inner surface and moving
3 said movable core within said tube inner surface for adjusting inductance of said
4 coil.

1 76. (Currently amended) The method as recited in claim ~~75~~ 74, further comprising
2 the steps of:

3
4 e) providing a substrate; and

5
6 f) surface mounting said coil to said substrate.

- 1 77. (Previously added) The method as recited in claim 76, wherein, in said providing
2 step (e), said substrate comprises a printed circuit board, a ceramic substrate, a
3 flexible material, or an integrated circuit.
- 1 78. (Previously added) The method as recited in claim 76, wherein said surface
2 mounting step (f) comprises the step of electrically connecting conductor
3 exposed in said opening in said insulation to said substrate.
- 1 79. (Previously added) The method as recited in claim 78, further comprising the
2 step of providing a solder or conductive polymer, wherein said electrical
3 connecting step comprises joining with said solder or said conductive polymer.
- 1 80. (Previously added) The method as recited in claim 79, wherein said joining step
2 comprises providing solder paste between said substrate and said conductor
3 exposed in said window and heating to reflow said solder.
- 1 81. (Previously added) The method as recited in claim 76, further comprising the
2 step of mounting additional electronics on said substrate.
- 1 82. (Previously added) The method as recited in claim 81, further comprising the
2 step of connecting said additional electronics to said coil.
- 1 83. (Previously added) The method as recited in claim 82, further comprising the
2 step of providing a housing for holding said coil, said substrate, and said
3 additional electronics.
- 1 84. (Previously added) The method as recited in claim 83, further comprising the
2 step of hermetically sealing said housing.

- 1 85. (Previously added) The method as recited in claim 83, further comprising the
2 step of providing pins for external connection through said housing.
- 1 86. (Previously added) The method as recited in claim 83, wherein said coil and said
2 additional electronics comprise a sensor.
- 1 87. (Previously added) The method as recited in claim 86, wherein said sensor
2 comprises a variable reluctance transducer.
- 1 88. (Previously added) The method as recited in claim 86, wherein said sensor is for
2 measuring strain, displacement, acceleration, force, or pressure.
- 1 89. (Previously added) The method as recited in claim 86, further comprising the
2 step of providing a circuit to correct for temperature variation.
- 1 90. (Previously added) The method as recited in claim 89, wherein said circuit is
2 integrated within said housing.
- 1 91. (Previously added) The method as recited in claim 89, wherein said circuit is
2 located within signal conditioning electronics separate from said housing.
- 1 92. (Previously added) The method as recited in claim 81, wherein said additional
2 electronics provides excitation or synchronous demodulation.
- 1 93. (Previously added) The method as recited in claim 81, wherein said additional
2 electronics converts an ac waveform to a dc voltage.

- 1 94. (Previously added) The method as recited in claim 75, further comprising the
2 step of enclosing said coil in a housing and hermetically sealing said housing.
- 1 95. (Previously added) The method as recited in claim 75, wherein said step of
2 forming openings in portions of said insulation comprises laser ablating said
3 insulation.
- 1 96. (Previously added) The method as recited in claim 95, wherein said step of laser
2 ablating said insulation, comprises directing light from a laser on said insulation.
- 1 97. (Previously added) The method as recited in claim 96, wherein said laser
2 comprises an excimer laser.
- 1 98. (Previously added) The method as recited in claim 95, wherein said coil
2 comprises a plurality of turns of said wire and wherein said step of laser ablating
3 said insulation comprises opening said insulation over a plurality of said turns of
4 wire.
- 1 99. (Previously added) The method as recited in claim 95, wherein said step of laser
2 ablating said insulation comprises ablating a ring shaped opening in said
3 insulation.
- 1 100. (Previously added) The method as recited in claim 2, wherein said wire
2 comprises an insulated wire and said step (a) comprises winding said insulated
3 wire around said tube.
- 1 101. (Previously added and withdrawn from consideration) The method as recited in
2 claim 24, wherein said laser comprises an excimer laser.

1 102. (Currently amended) A method of fabricating an electronic device, comprising in
2 order, the steps of:

- 3 a) providing a coil of conductor and an insulation, said coil of
4 conductor having a coil outer surface and a coil inner surface, said
5 insulation on said coil outer surface, said coil of conductor further
6 comprising a coil length;
- 7 b) forming openings in portions of said insulation on said coil outer
8 surface and exposing conductor in said openings for external
9 contacts;
- 10 c) dicing through said coil to provide a plurality of short coils,
11 wherein each said short coil has at least one said opening in said
12 insulation, wherein each of said plurality of short coils has a short
13 coil length that is less than said coil length;
- 14 d) providing a substrate;
- 15 e) surface mounting said coil to said substrate;
- 16 f) mounting additional electronics on said substrate;
- 17 g) connecting said additional electronics to said coil; and
- 18 h) providing a housing for holding said coil, said substrate, and said
19 additional electronics.

1 103. (Currently amended) A method of fabricating an electronic device, comprising in
2 order, the steps of:

3 a) providing a coil of conductor, an insulation, and a tube, said coil of
4 conductor having a coil outer surface and a coil inner surface, said
5 insulation on said coil outer surface, wherein said tube has a tube
6 outer surface and a tube inner surface, and wherein said coil of
7 conductor and said insulation are on said tube outer surface, further
8 wherein said coil of conductor further comprises a coil length;

9 b) forming openings in portions of said insulation on said coil outer
10 surface and exposing conductor of said coil for contacts;

11 c) dicing through said coil to provide a plurality of short coils,
12 wherein each said short coil has at least one said opening in said
13 insulation, wherein each of said plurality of short coils has a short
14 coil length that is less than said coil length; and

15 d) providing a movable core within said tube and providing for
16 moving said movable core within said tube for adjusting
17 inductance of said coil.